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Sheryl Sue Holloway
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025

| EXAMINER |
|---|
| PARDO, THUY N |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 December 2007*.

2a)☒ This action is **FINAL**.  2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☒ Claim(s) *23,27,28,30,32-39,42-48,51,55,56,58,60-67,70,72-76,79,83,84,86,88-95,98-104,107,111,112,114,116-123,126 and 128-132.* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a)☐ All  b)☐ Some * c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 21,23,25-40,42,44-49,51,53-68,70,72-77,79,81-96,98,100-105,107,109-124,126 and 128-132.


Continuation of Disposition of Claims: Claims rejected are
21,22,25,26,29,31,40,49,50,53,54,57,59,68,77,78,81,82,85,87,96,105,106,109,110,113,115 and 124.

# DETAILED ACTION

1.      Applicant's Response filed on December 26, 2007 in response to Examiner's Office

Action has been reviewed. Claims 21, 23, 25-40, 42, 44-49, 51, 53-68, 70, 72-77, 79, 81-96, 98,

100-105, 107, 109-124, 126 and 128-132 are pending in the application. Claims 21, 40, 49, 68,

77, 96, 105 and 124 have been amended, and claims 1-20, 22, 24, 41, 43, 50, 52, 69, 71, 78, 80,

97, 99, 106, 108, 125 and 127 have been canceled. This Office Action is made Final.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.      Claims 21, 25, 26, 29, 31, 40, 49, 53, 54, 57, 59, 68, 77, 78, 81, 82, 85, 87, 96, 105, 109,

110, 113, 115 and 124 are rejected under 35 U.S.C. 103(a) as being unpatentable Becker US

Patent No. 6,301,579, in view of Agrawal et al. (Hereinafter "Agrawal") US Patent No.

5,978,794.

As to claim 21, Becker teaches the invention substantially as claimed, comprising:

creating a root node [1102 of fig. 11A] comprising coordinates in the MDS space for a

first subset of the set of points [col. 3, lines 50-60] the root node further comprising boundary

information in the MDS space [("gross income>60000" & "occupation"= "tech-support"), see

col. 21, lines 1-10; boundary information: "other-relative", "unmarried", "wife", "Husband", see

fig. 10A] for local MDS spaces defined by further subsets of the set of points [col. 7, lines 38 to

col. 8, lines 29]; and

creating a plurality of leaf nodes [1114, 1116, 1118 of fig. 11A], each leaf node [B of fig.

12] comprising coordinates in a local MDS space for the points in one of the further subsets [Cs

of fig. 12].

However, Becker does not explicitly teach the MDS space defined by running MDS on

the first subset of points. Agrawal teaches the MDS space defined by running MDS on the first

subset of points [ab; fig. 1, 7; col. 3, lines 48-62; col. 5, lines 37-61]. Agrawal further teaches the

hierarchical data structure searchable to identify objects with similar attributes [see the abstract;

col. 2, lines 60-63].

It would have been obvious to one of ordinary skill in the Data Processing art at the time

of the invention to add this feature of Agrawal to the system of Becker as an essential means to

provide efficient reorganization of a database into a topic hierarchy for user's information need.


As to claim 40, Becker and Agrawal teach the invention substantially as claimed,

comprising identifying a node for a new point corresponding to a new object based on attribute

proximities between the new object and existing objects [Becker, col. 17, lines 59 to col. 18,

lines 62; col. 20, lines 48-64]. Agrawal further teaches adding the new point into the subset

associated with the identified node and redefining the local MDS space for the identified node
[ab; fig. 6, col. 3, lines 1 to col. 4, lines 2; col. 5, lines 6-27].

As to claims 31, 49, 59, 68, 77, 87, 96, 105, 115 and 124, all limitations of these claims
have been addressed in the analysis above, and these claims are rejected on that basis.

As to claims 22, 50, 78 and 106, Becker and Agrawal teach the invention substantially as
claimed. Agrawal further teaches selecting the first subset of points based on the distances
between pairs of points [col. 3, lines 1-19; col. 1, lines 27-47, ab].

As to claims 25, 53, 81 and 109, Becker and Agrawal teach the invention substantially as
claimed. Agrawal further teaches creating a plurality of leaf nodes comprises iteratively grouping
the points remaining after selecting the first subset into the further subsets based on coordinates
in the MDS space of the remaining points [col. 7, lines 12 to col. 8, lines 51; col. 3, lines 48 to
col. 4, lines 2; col. 3, lines 6-19].

As to claims 26, 54, 82 and 110, Becker and Agrawal teach the invention substantially as
claimed. Becker further teaches that the points are grouped using a median cut algorithm [tables
1 in col. 12-13; col. 14, lines 55-67].

As to claims 29, 57, 85 and 113, Becker and Agrawal teach the invention substantially as
claimed. Agrawal further teaches a map relating distances between pairs of points in the

associated MDS space with the attribute proximities between the corresponding objects [col. 1, lines 26-61].

### *Allowable Subject Matter*

3.      Claims 23, 27-28, 30, 32-39, 42-48, 51, 55-56, 58, 60-67, 70, 72-76, 79, 83-84, 86, 88-95, 98-104, 107, 111-112, 114, 116-123, 126 and 128-132 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 23, 51, 79 and 107, the feature that the largest distance between a pair of points is used as base criteria for selecting points for the first subset, taken together with other limitations of claims 21 and 22, 49 and 50, 77 and 78, or 105 and 106 was not disclosed by the prior art of record.

As to claims 30, 58, 86 and 114, the feature that the leaf nodes further comprise coordinates for any overlapping portions of the associated local MDS spaces, taken together with other limitations of claims 21, 49, 77 and 105 was not disclosed by the prior art of record.

As to claims 32, 41, 60, 69, 88, 97, 116 and 125, the feature of adding the new point into the subset associated with the identified node and redefining the local MDS space for the identified node, taken together with other limitations of claims 21 and 31, 49 and 59, 77 and 87, 105 and 115, 40, 68, 96 or 124 was not disclosed by the prior art of record.

As to claims 38, 47, 66, 75, 94, 103, 122 and 131, the feature of determining points in the subset associated with the identified node that are within a pre-determined distance of the new

point, taken together with other limitations of claims 21 and 31, 49 and 59, 77 and 87, 105 and

115, 40, 68, 96 or 124 was not disclosed by the prior art of record.

As to claims 27, 55, and 111, the features that the coordinates of the remaining points are

calculated using a single node update process, taken together with other limitations of claims

21 and 25, 49 and 53, or 105 and 109 was not disclosed by the prior art of record.

As to claims 28, 56 and 112, the feature that creating a plurality of leaf nodes further

comprising running MDS on the further subsets of points to define the local MDS spaces,

taken together with other limitations of claims 21 and 25, 49 and 53, or 105 and 109 was not

disclosed by the prior art of record.

Claims 33-37, 39, 42-46, 48, 61-65, 67, 70-74, 76, 83-85, 89-93, 95, 98-102, 104, 117-

121, 123, 126-130 and 132 being further limiting to claims 21 and 31, 49 and 59, 77 and 87, 105

and 115 are also objected to.

*Response to Arguments*

4.     Applicant's arguments filed December 26, 2007 have been fully considered but they are

not persuasive.

The recitations "represent an MDS (multidimensional scaling) space as a hierarchical

data structure, the MDS defined by a set of points that correspond to a set of objects, wherein

distances between pairs of points in the MDS space represent attribute proximities for the

corresponding pairs of objects, the hierarchical data structure searchable to identify objects with

similar attributes" as specified in the independent claims 21, 49 and 105, "query a hierarchical

data structure to identify objects with similar attributes, the hierarchical data structure

comprising root and leaf nodes representing an MDS (multidimensional scaling) space as a

hierarchical data structure, the MDS defined by a set of points that correspond to a set of objects,

wherein distances between pairs of points in the MDS space represent attribute proximities for

the corresponding pairs of objects, the root node comprises coordinates in the MDS space for a

first subset of the set points and boundary information in the MDS space for local MDS spaces

defined by further subsets of the set of points, and each leaf node comprises coordinates in a

local MDS space for the points on one of the further subsets" as specified in the independent

claims 40, 68 and 124, have not been given patentable weight because the recitation occurs in the

preamble. A preamble is generally not accorded any patentable weight where it merely recites

the purpose of a process or the intended use of a structure, and where the body of the claim does

not depend on the preamble for completeness but, instead, the process steps or structural

limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976)

and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

It should be noted that MultiDimensional Scaling (MDS) is also a well-known technique

for representing various types of data a spatial arrangement that is based on similarity or

dissimilarity data [see on page 1 specification]. Becker teaches creating a multi-dimensional data

structure in which the data structure comprises one or more levels arranged in a hierarchal

manner (a root node and a plurality of leaf nodes) as the same as the function of what Applicant

claims. Agrawal teaches the MDS space defined by running MDS on the first subset of points

["Business and Economy", "Recreation", and "Science" have been defined as different topics in the first subsets of points, fig. 2; col. 9, lines 50 to col. 10, lines 22].

Applicant argues that neither Becker nor Agrawal teach a single reference to coordinates in the multidimensional scaling space, distances between pairs of points, or boundary information for multidimensional scaling spaces.

As to this point, Examiner respectfully disagrees. Examiner believes that Becker teaches a single reference to coordinates {a file created from an "adult" census datasets [see col. 10, lines 66 to col. 11, lines 19; col. 21, lines 1-10] and boundary information in the MDS space [("gross income>60000" & "occupation"= "tech-support"), see col. 21, lines 1-10; boundary information: "other-relative", "unmarried", "wife", "Husband", see fig. 10A] for local MDS spaces. Agrawal also teaches the MDS space defined by running MDS on the first subset of points ["Business and Economy", "Recreation", and "Science" have been defined as different topics in the first subsets of points, fig. 2; col. 9, lines 50 to col. 10, lines 22] and the MDS space defined by running MDS on the first subset of points [ab; fig. 1, 7; col. 3, lines 48-62; col. 5, lines 37-61].

Applicant argues that neither Becker nor Agrawal teach that the nodes in a hierarchical data file comprise any coordinates in any space at all.

Examiner respectfully disagrees. Examiner believes that the cited references teach this feature [see fig. 11A of Becker and see the abstract, fig. 2, 5-6 of Agrawal].

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art.  See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, both Becker and Agrawal direct to multidimensional scaling space to identify

objects with similar attributes [see the both abstracts of Becker and Agrawal].

## *Conclusion*

**THIS ACTION IS MADE FINAL.**  Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action.  In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action.  In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

## *OTHER PRIOR ART MADE OF RECORD*

5.     Chen et al. (US 6,047,080) discloses a method for three-dimensional reconstruction of a

target object for two-dimensional images involves a target object having a plurality of branch-

like vessels including steps of creating a vessel hierarchy data structure for each project image,

the data structure including the identified two-dimensional vessel centerlines defined by a

plurality of data points in the vessel hierarchy data structure. The Abstract and Disclosure are relevant, especially fig. 4-5; col. 19, lines 53 to col. 20, lines 3.

6.      Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuy N. Pardo whose telephone number is 571-272-4082. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thuy N. Pardo/

Primary Examiner, Art Unit 2168